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54

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/377,667	08/19/1999	HIROMU MUKAI	15162/01020	8179

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SIDLEY AUSTIN BROWN & WOOD LLP.
717 NORTH HARWOOD
SUITE 3400
DALLAS, TX 75201

EXAMINER

GENCO, BRIAN C

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 05/08/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/377,667

Applicant(s)

MUKAI, HIROMU

Examiner

Brian C Genco

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over (JP 11-52451 to Funabashi) in view of (USPN 5,654,565 to Hokari).

In regards to claim 1 Funabashi discloses an image pickup device comprising:

an image input optical system for forming an image on a sensor, said image input optical system including a diaphragm (e.g., Fig. 1 wherein the claimed diaphragm is the opening formed in element 1); and

the diaphragm whose shape in a horizontal direction coincides with a shape of said light receiving portions of said sensor (e.g., conventionally light receiving portions are formed in a matrix shape wherein the horizontal direction of the diaphragm coincides with a matrix shape).

Funabashi does not disclose nor preclude an image sensor with microlenses being the sensor that the optical system is directed to. It is extremely well known and established in the art to use digital image sensors such as a CCD image sensor in order to capture an image directed to the image sensor by an optical system. Note that the pixels disclosed by Hokari are rectangular. It is further extremely well known and established in the art to use microlenses integrated on a CCD in order to focus more light onto a pixel. Both of these teachings are taught by Hokari (e.g., Figs. 1-9). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have had the optical system disclosed by Funabashi directed toward a CCD image sensor as it is a widely known, used, and manufactured image sensor and therefore it would be easy to acquire for the manufacture of complete camera systems. Furthermore, it would have been obvious to have had microlenses integrally attached to the CCD image sensor in order to focus more light onto a pixel.

In regards to claim 2 see Figs. 1-3 of Funabashi's disclosure.

In regards to claim 3 note that a vertical CCD for transferring charge out of a CCD image sensor is an implied feature of a CCD in order to facilitate the read out of charges (see Fig. 1 of Hokari's disclosure).

In regards to claim 4 see examiners notes on the rejection of claim 1. In this rejection examiner is redefining the diaphragm to be elements 2 and 3 of Fig. 1 and further defining the claimed light restricting plate as element 1 of Fig. 1. Further note that the diaphragm and light restricting plate as defined above are provided separately from each other as shown in Fig. 1.

In regards to claim 5 Examiner notes that the light restricting plate is disposed on one side in the horizontal direction as well as the other as shown in Fig. 1.

In regards to claim 6 see Fig. 1.

In regards to claim 7 see examiners notes on the rejection of claims 3 and 4.

In regards to claims 8-14 see examiners notes on the rejection of claims 1-7.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claims 1, 2, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 5,510,826 to Koide) in view of (USPN 5,365,307 to Sugiyama) in further view of (USPN 5,654,565 to Hokari).

In regards to claim 1 Koide discloses an image pickup device comprising:

a photosensitive drum;

an image input optical system for forming an image on a sensor, said image input optical system including a diaphragm (e.g., Fig. 2); and

the diaphragm whose shape in a horizontal direction coincides with a shape of said light receiving portions of said sensor (e.g., element 4 of Fig. 2; Fig. 3).

Koide does not disclose nor preclude an image sensor with rectangular pixels and microlenses integrally formed. Sugiyama discloses that it is known in the art to use a linear image sensor instead of a photosensitive drum in order to photoelectrically read the image information and obtain a copy based on the output of the image sensor (e.g., column 2, lines 58-63). Therefore it would have been obvious to replace Koide's photosensitive drum with a linear image sensor as disclosed by Sugiyama in order to photoelectrically read the image information

Art Unit: 2615

and obtain a copy based on the output of the image sensor. Hokari discloses a two-dimensional image sensor with rectangular pixels and microlenses (e.g., Figs. 1-9). It is extremely well known and established in the art to use microlenses integrated on a CCD in order to focus more light onto a pixel. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have had rectangular pixels with microlenses integrally attached as taught by Hokari in order to focus more light onto a pixel.

In regards to claim 2 see element 4 of Fig. 2.

In regards to claims 8 and 9 see examiners notes on the rejection of claims 1 and 2.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian C. Genco who can be reached by phone at 703-305-7881 or by fax at 703-746-8325. The examiner can normally be reached on Monday thru Friday 8:00am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-9644. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology center 2600 customer service office whose telephone number is 703-306-0377.

Brian C Genco
Examiner

Application/Control Number: 09/377,667

Page 6

Art Unit: 2615

Art Unit 2615

May 5, 2003

A handwritten signature in black ink, appearing to read 'Andrew Christensen', with a long horizontal flourish extending to the right.

ANDREW CHRISTENSEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600